switching, during interruption phases, the mobile station to reception of characteristic data packets which are transmitted by a second base station using a second transmission method; and

switching, during interruption phases, the mobile station to reception of the data packets to be detected and transmitted by the second base station using the second transmission method.

37. A method for data transmission in a mobile radio system as claimed in claim 36, the method further comprising the step of:

using knowledge about a frame structure of the data packets transmitted by the second base station in order to reduce a maximum effective total duration of the interruption phases.

38. A method for data transmission in a mobile radio system as claimed in claim 36, the method further comprising the step of:

using, if the transmission conditions are good, a shorter maximum effective total duration of the interruption phases for secure detection of a data packet to be detected than would be necessary if the mobile station is switched only to receive the characteristic data packets.

39. A method for data transmission in a mobile radio system as claimed in claim 36, the method further comprising the step of:

using knowledge about a relative position of the characteristic data packets transmitted by the second base station and of the data packets to be detected in order to reduce a maximum effective total duration of the interruption phases.

40. A method for data transmission in a mobile radio system as claimed in claim 36, the method further comprising the step of:

transmitting, after receiving at least one of a characteristic data packet and a data packet to be detected, from the mobile station to the first base station, information which influences insertion of interruption phases.

41. A method for data transmission in a mobile radio system as claimed in claim 40, the method further comprising the step of:

transmitting, after receiving a data packet to be detected, from the mobile station to the first base station, information which results in no more interruption phases being inserted.

42. A method for data transmission in a mobile radio system as claimed in claim 40, the method further comprising the step of:

transmitting, after receiving a characteristic data packet, information from the mobile station to the first base station, which results in another interruption phase for receiving the data packet to be detected being inserted after a predetermined time interval between the characteristic data packets and the data packets to be detected.

43. A method for data transmission in a mobile radio system as claimed in claim 36, the method further comprising the steps of:

switching, after receiving at least one of a characteristic data packet and a data packet to be detected from the second base station, the mobile station to receive at least one of another characteristic data packet and a data packet to be detected from at least one third base station; and

transmitting, after receiving at least one of the characteristic data packet and the data packet to be detected from the at least one third base station information from the mobile station to the first base station in order to at least one of influence the insertion of the interruption phases and transmit information via at least one of the second and third base stations.

44. A method for data transmission in a mobile radio system as claimed in claim 36, the method further comprising the step of:

storing and evaluating in a memory information transmitted via data packets from the mobile station to the second base station in a predetermined time period.

45. A method for data transmission in a mobile radio system as claimed in claim 43, the method further comprising the step of:

transmitting information for influencing insertion of the interruption phases and information about the second and the third base stations via a same message.

46. A method for data transmission in a mobile radio system as claimed in claim 43, wherein the second and third base stations are base stations in a GSM-type mobile radio system, the data packets to be detected are synchronization data packets, and the characteristic data packets are frequency correction data packets.

47. A mobile station in a mobile radio system, comprising:

a first receiver for receiving first data which are transmitted by a first base station using a first transmission method;

a second receiver for receiving data packets which are transmitted by a second base station using a second transmission method;

an inserter for inserting pauses at least during specific reception phases in which at least one of reception of first data and processing of received first data is interrupted; and

a switch for switching to reception of characteristic data packets and data packets to be detected and transmitted by a second base station during the specific reception phases in which at least one of the reception of the first data and the processing of the received first data is interrupted.

48. A mobile station in a mobile radio system as claimed in claim 47, further comprising:

a further switch for switching to reception of data packets which are characteristic, are to be detected and are transmitted by a third base station.

49. A mobile station in a mobile radio system as claimed in claim 47, further comprising:

an evaluator for evaluating information contained in at least one of the characteristic data packets and the data packets to be detected; and

a transmitter for transmitting information to the first base station, which influences the insertion of interruption phases as a function of information which is contained in at least one of the characteristic data packets and the data packets to be detected.

50. A mobile station in a mobile radio system as claimed in claim 47, further comprising:

an evaluator for evaluating information contained in at least one of the characteristic data packets and in the data packets which are to be detected; and

a switch for switching off specific elements in the mobile station in the interruption phases once sufficient information has been determined about at least one further base station.

51. A mobile station in a mobile radio system as claimed in claim 47, further comprising:

a transmitter for transmitting information to the first base station which results in no more interruption phases being inserted.

52. A mobile station in a mobile radio system as claimed in claim 47, further comprising:

a transmitter for transmitting information to the first base station which results in no more interruption phases being inserted after receiving a subsequent data packet to be detected.

53. A mobile station in a mobile radio system as claimed in claim 47, further comprising:

a transmitter for transmitting information to the first base station which results in another interruption phase for receiving the data packet to be detected being inserted after a predetermined time interval which is between the characteristic data packets and the data packets to be detected.

54. A mobile station in a mobile radio system as claimed in claim 49, further comprising:

a switch for switching to reception of at least one of a characteristic data packet and a data packet to be detected from at least one third base station after receiving at least one of a characteristic data packet and a data packet to be detected from a second base station; and

a transmitter for transmitting information to the first base station in order to at least one of influence the insertion of the interruption phases and transmit information about second and third base stations after receiving at least one of a characteristic data packet and a data packet to be detected from at least one third base station.

55. A mobile station in a mobile radio system as claimed in claim 47, further comprising:

a device for storing and evaluating data packets received by a second base station in a predetermined time period.

56. A base station in a mobile radio system, comprising:

a transmitter for transmitting first data to a mobile station using a first transmission method; and

an inserter for inserting interruption phases at least during specific transmission phases in which the mobile station interrupts the reception of at least

one of the first data and the processing of received first data, and in which the mobile station is switched to reception of characteristic data packets and data packets to be detected and are transmitted by a second base station, wherein an effective total duration, which is required for secure detection in good transmission conditions, of the interruption phases is shorter than the effective total duration of the interruption phases when the mobile station is switched only to reception of at least one of characteristic data packets and data packets to be detected.

57. A base station in a mobile radio system as claimed in claim 56, further comprising:

a device for using knowledge about a frame structure of the data packets transmitted by the second base station in order to reduce the effective total duration of the interruption phases.

58. A base station in a mobile radio system as claimed in claim 56, further comprising:

a device for using knowledge about a relative position of the characteristic data packets and of the data packets to be detected and transmitted by the second base station, and is used to reduce a maximum effective total duration of the interruption phases.

59. A base station in a mobile radio system as claimed in claim 56, further comprising:

a receiver for receiving information which influences the insertion of interruption phases; and

a device for influencing the insertion of interruption phases as a function of the information which influences the insertion of interruption phases.

60. A base station in a mobile radio system as claimed in claim 56, further comprising:

a transmitter for transmitting data from and to a mobile station;

an inserter for inserting interruption phases at least during specific transmission phases;

a receiver for receiving information which influences the insertion of interruption phases; and

a device for influencing the insertion of interruption phases as a function of a reception result at the mobile station.

61. A base station in a mobile radio system as claimed in claim 56, further comprising:

a device for receiving and processing information which results in more than interruption phases being inserted.

62. A base station in a mobile radio system as claimed in claim 56, further comprising:

a device for receiving and processing information which results in no more interruption phases being inserted after receiving a subsequent data packet to be detected.

63. A base station in a mobile radio system as claimed in claim 56, further comprising:

a device for receiving and processing information which results in another interruption phase for receiving the data packet to be detected being inserted after a predetermined time interval between characteristic data packets and data packets to be detected.

64. A base station in a mobile radio system as claimed in claim 56, further comprising: